

REMARKS

Claims 1-7 and 9-39 are pending, with claims 1, 25 and 38 being independent. Claim 8 has been cancelled. Claims 1, 5, 9, 10, 11, 25, and 38 have been amended. No new matter has been added.

In view of the foregoing amendments and the following remarks, reconsideration and allowance of this application are requested.

35 U.S.C. § 102 Healey Rejection

Claims 1-4, 6-11, 14, 16, 17, 22-25, 27-29, 31-33, 37-39 have been rejected as allegedly being anticipated by U.S. Patent No. 3,979,709 ("Healey").

Independent claim 1 recites a fuse including an electrical assembly and a fuse tube assembly. The electrical assembly includes two electrical contacts accessible from an exterior of a fuse and a fuse element in contact with the two electrical contacts. The fuse tube assembly includes a pre-formed tubular support structure surrounding at least a portion of the electrical assembly and a reinforcing structure formed over the pre-formed tubular support structure and in contact with at least a portion of the electrical assembly. The reinforcing structure includes a fiber matrix pre-impregnated with a resin.

Independent claim 38 recites a fuse including an electrical assembly and a fuse tube assembly that includes a pre-formed tubular support structure surrounding at least a portion of the electrical assembly and a reinforcing structure formed over the pre-formed tubular support structure. In claim 38, the reinforcing structure includes a resin composition of discontinuous fibers arbitrarily dispersed in an epoxy.

With respect to claims 1 and 38, and their dependent claims, applicant respectfully requests reconsideration and withdrawal of this rejection because Healey does not disclose the subject matter of independent claims 1 and 38. In particular, Healey does not disclose a pre-formed tubular support structure and a reinforcing structure formed over the pre-formed tubular support structure.

Healey relates to an electric fuse having a laminated casing formed of multiple layers of resin-impregnated glass cloth. See Abstract (“The casing further includes a thermosetting resin integrating said outermost ply, said innermost ply and said intermediate ply into a laminate.”) The casing is formed by a pultrusion process in which all layers of the laminate are folded on a mandrel and then infused with resin. See FIG. 15 and col. 11:33 - col. 12:39. Thus, all layers of the laminated casing are formed and integrated together, see col. 6:27-29 (“Casing 6 further includes a thermosetting resin integrating plies 6a, 6b, 6c into a tubular laminate.”), and therefore Healey does not disclose a pre-formed tubular support structure with a fiber matrix reinforcing structure formed over the pre-formed tubular support structure.

In rejecting cancelled claim 8, the Examiner equates an “inner mandrel shaped portion D2” of a die, see col. 12:19-22 and FIG. 15, with the “pre-formed tubular support structure” recited in currently amended claim 1. However, as is clear from FIG. 15 and from col. 12:19-22, although the die, formed of portions D1 and D2, is used to shape and form the laminate during the pultrusion process, the die is not part of the fuse and cannot constitute the recited preformed tubular support structure.

For at least these reasons, applicant requests withdrawal of the rejections of claims 1 and 38. Claims 2-4, 6-11, 14, 16, 17, and 22-24 depend from claim 1 and are allowable for at least the reasons that claim 1 is allowable. Claim 39 depends from claim 38 and is allowable for at least the same reasons that claim 38 is allowable.

Independent claim 25 recites a method of reinforcing a fuse, including providing an electrical assembly that includes two electrical contacts accessible from an exterior of a fuse and a fuse element in contact with the two electrical contacts, surrounding at least a portion of the electrical assembly by a pre-formed tubular support structure, and applying a reinforcing structure over the pre-formed tubular support structure and in contact with at least a portion of the electrical assembly, where the reinforcing structure comprises a fiber matrix, the fiber matrix comprising fibers pre-impregnated with a resin.

As explained above, Healey does not disclose applying a reinforcing structure over a pre-formed tubular support structure. Rather, Healey discloses, in FIG. 15 and at col. 11:33 – col.

12:39, pultruding a multilayer laminate and infusing the laminate with resin to form a fuse casing. For at least this reason, applicant requests reconsideration and withdrawal of the rejection of claim 25. Claims 27-29, 31-33, and 37 depend from claim 25 and are allowable for at least the reasons that claim 25 is allowable.

35 U.S.C. § 103 Healey/Tobin Rejection

Dependent claim 5 has been rejected as allegedly obvious over Healey in view of U.S. Patent No. 4,349,803 ("Tobin"). Applicant requests withdrawal of this rejection because Tobin does not cure the deficiencies of Healey.

Tobin relates to a weather resistant fuse tube having an inner portion, and outer portion, and a reinforcing material (e.g., fiberglass cloth, mat, or spirally wound strands). See col. 4:1-9. To make the fuse tube, a cylinder of reinforcing material is placed in a mold, and material is introduced into the mold from inside the cylinder to form the inner portion of the tube and from outside the cylinder to form the outer portion of the tube. Material from inside and from outside the reinforcing material cylinder flows through the reinforcing material so that material inside the cylinder bonds with material outside the cylinder, such that the inner portion and outer portion bond together to form a continuum. See col. 4:24-35; see also col. 3:2-10.

Thus, Tobin does not disclose a pre-formed tubular support structure over which a reinforcing structure is formed, as recited in claims 1 and 38, and Tobin does not disclose applying a reinforcing structure over a pre-formed tubular support structure, as recited in claim 25. Rather, Tobin discloses injecting fluid material into a mold containing a reinforcing material, such that a tube is molded that includes the reinforcing material within the molded tube.

Thus, Tobin does not cure the deficiencies of Healey with respect to independent claim 1. Because claim 5 depends from claim 1, claim 5 is allowable for at least the reasons that claim 1 is allowable.

35 U.S.C. § 103 Healey/Schmunk Rejection

Claims 12, 13, and 26 have been rejected as allegedly obvious over Healey in view of U.S. Patent No. 4,028,656 ("Schmunk"). Applicant requests withdrawal of this rejection because Schmunk does not cure the deficiencies of Healey.

Schmunk relates to a high-voltage fuse with an out heat-shrinkable sleeve. See Abstract. However, Schmunk does not describe a fuse tube assembly that includes a pre-formed tubular support structure and a reinforcing structure formed over the pre-formed tubular support structure and in contact with at least a portion of the electrical assembly.

Thus, Schmunk does not cure the deficiencies of Healey with respect to independent claim 1. Because claims 12, 13, and 26 depend from claim 1, claims 12, 13, and 26 are allowable for at least the reasons that claim 1 is allowable.

35 U.S.C. § 103 Healey/Schmunk/Pearce Rejection

Claim 15 has been rejected as allegedly obvious over Healey in view of Schmunk and in further view of U.S. Patent No. 5,261,980 ("Pearce"). Applicant requests withdrawal of this rejection because Pearce does not cure the deficiencies of Healey and Schmunk.

Pearce relates to a method of manufacturing fiber-reinforced composite materials (e.g., for use as ski poles, spars for hang gliders, rocket launch tubes, etc.) Col. 1: 6-17. However, Pearce does not describe a fuse tube assembly that includes a pre-formed tubular support structure and a reinforcing structure formed over the pre-formed tubular support structure and in contact with at least a portion of the electrical assembly.

Thus, Pearce does not cure the deficiencies of Healey and Schmunk with respect to independent claim 1. Because claim 15 depends from claim 1, claim 15 is allowable for at least the reasons that claim 1 is allowable.

35 U.S.C. § 103 Healey Rejection

Claims 18-21, 30, and 34-36 have been rejected as allegedly obvious over Healey. Applicant requests withdrawal of this rejection and allowance of dependent claims 18-21, 30,

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Serial No. : 10/716,543
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Page : 11 of 11

Attorney's Docket No.: 08215-539001 / P04-026851

and 34-36 because, as explained above, Healey does not disclose all the elements of independent claims 1 and 25, from which these claims depend.

No fees are believed to be due at this time. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 08215-539001.

Respectfully submitted,

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